

Amendments to the Specification

Please replace the Specification Paragraphs [0030] and [0035] as follows:

[0030] The first link 5 has a first opposing wall section 15 and a second opposing wall section 17 that face each other at a predetermined spacing. The first opposing wall section 15 and the second opposing wall portion 17 become a single-piece construction coupled by a coupling wall portion 16 on ends thereof opposite to a side where the first opposing wall section 15 and the second ~~opposed~~ opposing portion 17 come into contact with the second link 9. The second link 9 includes a first opposed wall portion 19 and a second opposed wall portion 21 corresponding to the first opposing wall portion 15 and the second opposing wall portion 17, respectively. The first opposed wall portion 19 and the second opposed wall portion 21 become a single-piece construction coupled by a coupling wall portion 20 on ends thereof opposite to a side where the first opposed wall portion 19 and the second opposed portion 21 come into contact with the first link 5. That is, the first link 5 and the second link 9 are almost substantially of the same shape except for a difference in positions of a first rack gear 23 and a second rack gear 27, which will be described later, and a difference in dimensions of a spacing between the first opposing wall portion 15 and the second opposing wall portion 17 and a spacing between the first opposed wall portion 19 and the second opposed wall portion 21. The first opposing wall portion 15 and the first opposed wall portion 19 face each other with a predetermined spacing and are adjacent to the second opposing wall portion 17 and the second opposed wall portion 21, respectively. The rotation and extension/retraction joint mechanism 11 includes the first rack gear 23 provided for the first opposed wall portion 19 and extending along the second virtual center line 7, a first rack [[gear]]_sector 25 having a plurality of cogs *25a* to be engaged with the first rack gear 23, which is slidably supported by the first opposing wall portion 15 so that the first rack [[gear]]_sector 25 rolls on the first rack gear 23 and also slides along the first virtual center line 3, a second rack gear 27 provided at the second opposing wall portion 17 and extending along the first virtual center line 3, and a second sector gear 29 having a plurality of cogs *29a* to be engaged with the second rack gear 27, which is slidably supported by the second opposed wall portion 21 so that second sector gear 29 rolls on the second rack gear 27 and also slides along the second virtual center line 7. The first rack gear 23 is formed to extend linearly along the second virtual center

line 7 and has a width that protrudes from the first opposed wall portion 19 of the second link 9 to the first opposing wall portion 15 of the first link 5. The second rack gear 27 is formed to extend linearly along the first virtual center line 3 and has a width that protrudes from the second opposing wall portion 17 of the first link 5 to the second opposed wall portion 21 of the second link 9. The cogs 23a and the cogs 27a are formed in the first rack gear 23 and the second rack gear 27, respectively. Incidentally, a through hole 19a is provided in the vicinity of a location of the first opposed wall portion 19 of the second link 9 where the first rack gear 23 is provided, and a through hole 17a is provided in the vicinity of a location of the second opposing wall portion 17 of the first link 5 where the second rack gear 27 is provided. Originally, these through holes need not to be provided. However, presence of these through holes 19a and 17a allows lighter weight of the rotation and extension/retraction link mechanism. Further, maintenance on the gears such as lubrication of lubricating oil becomes thereby facilitated.

[0035] FIG. 4 is a drawing schematically showing a configuration of a rotation and extension/retraction link mechanism according to other embodiment of the present invention. Referring to this drawing, reference numerals adding 100 to reference numerals shown in FIGS. 1 and 3 are assigned to components common to those in the embodiment shown in FIGS. 1 and 3. Shapes and sizes of a first rack gear 123 and a first sector gear 125 and a positional relationship therebetween and shapes and sizes of a second rack gear 127 and a second sector gear 129, and a positional relationship therebetween are determined so that a minimum distance L1 between a center of rotation 33 of a second virtual center line 107 and a first virtual center line 103 and a minimum distance L2 between the center of rotation and the second virtual center line 107 are always completely constant. The center of rotation 33 is defined in the virtual plane when the second virtual center line 107 relatively rotates with respect to the first virtual center line 103. As a movement of an object on a plane can be regarded as a rotation movement about the certain point, the center of rotation 33 means the certain point when. Accordingly, when a minimum distance between the second virtual center line and the certain point is constant during a movement of the second virtual center line [[7]] 107, it means that the second virtual center line [[7]] 107 makes the rotation movement using the certain point as the center of rotation. In this case, radiuses of the first rack gear 123 and the second rack gear 127 are reduced more substantially in a left direction of the drawing, and are also curved in the form of convex

substantially in an upper direction of the drawing. Radiuses of the first sector gear 125 and the second sector gear 129 are reduced more move substantially in a left direction of the drawing, and are also curved in the form of convex substantially in a lower direction of the drawing. Referring to FIG. 4, though a plurality of cogs of the first rack gear 123 and the second rack gear 127 and a plurality of cogs of the first sector gear 125 and the second sector gear 129 are omitted in the drawing, a portion in which the first rack gear 123 is engaged with the first sector gear 125 is substantially as long as a portion in which the second rack gear 127 is engaged with the second sector gear 129. According to the embodiment of the present invention, an ideal rotation and extension/retraction link mechanism can be realized.